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10/501,025	04/08/2005	Anthony Victor Bridgwater	065435-9115 US00	3623
23409 7590 03/18/2008 MICHAEL BEST & FRIEDRICH LLP 100 E WISCONSIN AVENUE Suite 3300 MILWAUKEE, WI 53202				
EXAMINER YOUNG, NATASHA E				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/501,025

Applicant(s)

BRIDGWATER ET AL.

Examiner

NATASHA YOUNG

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Allowable Subject Matter***

The indicated allowability of claims 2-3 is withdrawn in view of the newly discovered reference(s) to Kanai (US 6,379,629 B1). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-9, 14, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kanai (US 6,379,629 B1).

Regarding claim 1, Kanai et al discloses an ablative thermolysis reactor comprising: (i) a reaction vessel (2), (ii) an inlet (2A) into the reaction vessel for receiving feedstock, (iii) an outlet (2B) from the reaction vessel for discharging thermolysis product, (iv) within the reaction vessel, an ablative surface (6) defining the periphery of a cylinder, (v) heating means (carbonizing vessel jacket) arranged to heat said ablative surface to an elevated temperature, and (vi) at least one rotatable surface (8), the or each rotatable surface having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface

such that feedstock is pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyze said feedstock (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Claim 4 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 4, Kanai discloses that the reaction vessel (2) is bounded by an outer peripheral wall (see figures 3-4) with the ablative surface (6) being defined by an inwardly facing surface of said outer wall (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Claim 5 depends on claim 4 such that the reasoning used to reject claim 4 will be used to reject the dependent portions of the claim.

Regarding claim 5, Kanai discloses that the, or each, rotatable surface is mounted inwardly of the ablative surface and arranged to press feedstock away from the axis of rotation (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Claims 6-8 depend on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claims.

Regarding claim 6, Kanai discloses that said ablative surface (6) has a circular or elliptical cross-section perpendicular to the axis of rotation of the, or each, rotatable surface (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Regarding claim 7, Kanai discloses that said at least one rotatable surface (8) is in the form of a rotatable blade (9) (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Regarding claim 8, Kanai discloses that the exhaust gas used as the heating medium for the heating jacket has a temperature in the range of 400 to 900° C and the carbonizing object reach a temperature of about 300 to 700° C (see column 6, lines 26-56) such that the heating means is adapted to heat said ablative surface to a temperature in the range of from about 400° C. to about 700° C.

Claim 9 depends on claim 7 such that the reasoning used to reject claim 7 will be used to reject the dependent portions of the claim.

Regarding claim 9, Kanai discloses the heating means is arranged to heat the ablative surface by electrical heating, by the combustion of a solid, liquid or gaseous fuel, by condensation of a vapour, or by circulation of a hot fluid (see column 3, line 36 through column 4, line 3).

Claims 14-15 depend on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claims.

Regarding claim 14, Kanai discloses that a plurality of rotatable surfaces are provided, the rotatable surfaces preferably being equi-angularly displaced about the axis of rotation (see figure 3).

Regarding claim 15, Kanai discloses that said reactor is provided with a continuous feed mechanism for supplying feedstock into said reaction vessel (see column 4, lines 28-42 and figure 3).

Regarding claim 2, Kanai discloses an ablative thermolysis reactor comprising: (i) a reaction vessel (2), (ii) an inlet (2A) into the reaction vessel for receiving feedstock, (iii) an outlet (2B) from the reaction vessel for discharging thermolysis product, (iv) within the reaction vessel, an ablative surface (6) defining the periphery of a cylinder, (v) heating means (carbonizing vessel jacket) arranged to heat said ablative surface to an elevated temperature, and (vi) at least one rotatable surface, the, or each, rotatable surface (8) having an axis of rotation coincident with the longitudinal axis of said cylinder, wherein the rotatable surface is positioned relative to the ablative surface such that feedstock is pressed between a part of the rotatable surface and said ablative surface and moved along the ablative surface by the rotatable surface, whereby to thermolyze said feedstock, and wherein the reaction vessel is bounded by an inner wall with the ablative surface being defined by an outwardly facing surface of said inner wall (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

Claim 3 depends on claim 2 such that the reasoning used to reject claim 2 will be used to reject the dependent portions of the claim.

Regarding claim 3, Kanai et al discloses that the, or each, rotatable surface (8) is mounted outwardly of the ablative surface (6) and arranged to press feedstock toward the axis of rotation (see Abstract; column 3, line 36 through column 4, line 42; and figures 3-4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai (US 6,379,629 B1).

Claim 10 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 10, Kanai does not disclose that means are provided to adjust the angle of the rotatable surface, or front surface of each blade when present, relative to the ablative surface.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide means to adjust the angle of the rotatable surface, or front surface of each blade when present, relative to the ablative surface, since it has been held that the provision of adjustability, where needed, involves routine skill in the art (see MPEP 2144 (V-D)).

Claim 11 depends on claim 10 such that the reasoning used to reject claim 10 will be used to reject the dependent portions of the claim.

Regarding claim 11, Kanai does not disclose that angle adjustment means are provided to adjust independently each rotatable surface or blade when present.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide means to independently adjust the angle of the rotatable surface, or front surface of each blade when present, relative to the ablative surface, since it has been held that the provision of adjustability, where needed, involves routine skill in the art (see MPEP 2144 (V-D)).

Regarding claim 12, Kanai does not disclose that means are provided to adjust the spacing between each rotatable surface and the ablative surface.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide means to adjust the spacing between each rotatable



surface and the ablative surface, since it has been held that the provision of adjustability, where needed, involves routine skill in the art (see MPEP 2144 (V-D)).

Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Kanai (US 6,379,629 B1, 2002) as applied to claim 1 above, and further in view of Kanai (US 5,586,396, 1996).

Claim 13 depends on claim 1 such that the reasoning used to reject claim 1 will be used to reject the dependent portions of the claim.

Regarding claim 13, Kanai (2002) does not disclose that the, or each, rotatable surface is resiliently biased toward the ablative surface.

Kanai (1996) discloses a rotatable surface is resiliently biased toward the inner surface of the cylinder (see figures 6-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Kanai (2002) with the teachings of Kanai (1996) for the predictable result of processing more of the feed.

### ***Response to Arguments***

Applicant's arguments, see Remarks, page 5, filed January 4, 2008, with respect to objections to the specification have been fully considered and are persuasive. The objections of specification have been withdrawn.

Applicant's arguments, see Remarks, page 8-13, filed January 4, 2008, with respect to the rejection(s) of claim(s) 1 and 4-15 under 102(b) and 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

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However, upon further consideration, a new ground(s) of rejection is made in view of Kanai (US 6,379,629 B1) and Kanai (US 5,586,396).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is (571)270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797